

Parallel Timeline

Wright Brothers Timeline

1899 (May) Wilbur writes a letter of request to the Smithsonian Institution for information about flight experiments.

Brothers design their first aircraft: a small, biplane glider to be flown as a kite. Its purpose was to test their solution for controlling the craft: wing-warping. Wing-warping is a method of twisting the wingtips slightly in opposite directions which would control the aircraft's rolling motion and balance. Following this successful test, the Wrights design a full-size glider. They select Kitty Hawk, North Carolina, as their test site because of its wind, sand, hilly terrain and remote location.

1900 (Sept) The brothers successfully test their 50-pound biplane glider with its 17-foot wingspan and wing-warping at Kitty Hawk, in both unmanned and piloted flights. Based upon the results, the Wrights decide to refine the controls and landing gear, and build a bigger glider.

Technology Timeline

1899 First American woman obtains a driver's license.

Aspirin is invented.

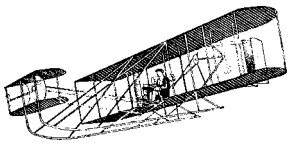
The first magnetic sound recording is made.

Alpha and beta rays in radioactive atoms are discovered.

1900 The paper clip is invented.

First flight of the Zeppelin is attempted.

First transmission of human speech via radio waves.



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1901 (Summer) At Kill Devil Hills, North Carolina, the brothers fly the largest glider ever flown, with a 22-foot wingspan, a weight of nearly 100 pounds and skids for landing. Many problems occur: wings do not have enough lifting power; forward elevator is not very effective in controlling the pitch; the wing-warping occasionally causes the airplane to spin out of control. In their disappointment, they predict that man will probably not fly in their lifetime.

(Winter) The Wrights review their test results and determine that the calculations they had used were not reliable. They decide to build a wind tunnel to test a variety of wing shapes and their effect on lift. Based upon these tests, they develop a greater understanding of how an airfoil works and greater accuracy in calculating how well a wing design will fly. They now design a glider with a 32-foot wingspan and a tail to help stabilize it.

Technology Timeline

1901 Blood groups are discovered.

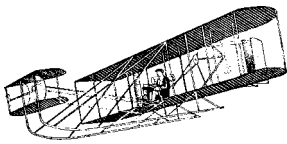
The typewriter is invented.

The vacuum cleaner is invented.

First motor-driven bicycles are developed.

Quantum theory is formulated.

The first Mercedes is built.



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1902 (Sept) The brothers fly numerous piloted test glides, with few mishaps. Studies of the mishaps show that a movable tail will help balance the craft. They connect the movable tail to the wing-warping wires to coordinate turns. With successful glides to verify their wind tunnel tests, the Wrights are now ready to build a powered aircraft.

1903 After months of studying how propellers work, the Wright Brothers design a motor and an aircraft body strong enough to accommodate its weight and vibrations. When built, the craft weighs over 700 pounds. This becomes the first "Flyer."

(Dec) The brothers build a movable track to launch the Flyer. This will help it gain enough airspeed to fly. On the third attempt to fly this machine, one of which resulted in a minor crash, Orville took it for a 12-second, sustained flight on December 17. This is the first powered, piloted flight in history.

Technology Timeline

1902 Air conditioning is invented.

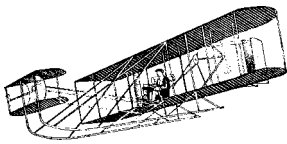
Disc brakes are invented.

First crossing of the Irish Channel by balloon.

1903 The electrocardiograph is invented.

First American coast-to-coast car trip is made.

Ford Motor Company is founded.



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1904 First flight lasting more than five minutes took place on November 9 (The Flyer II is flown by Wilbur Wright).

1908 The first passenger was flown on May 14. Wilbur Wright was the pilot.

The first fatal air crash occurred on September 17. Orville Wright was piloting the plane; he survived the crash, but his passenger did not.

1909 First "stealth" airplane is created by the Wright Brothers in an attempt to prevent others from copying their designs. After coating their airplane with varnish, they applied aluminum powder, causing the plane to blend in with the background of any photographs taken.

The U.S. Government bought its first airplane, a Wright Brothers biplane, on July 30. The airplane sold for \$25,000 plus a bonus of \$5,000 because it exceeded 40 mph.

Technology Timeline

1904 The first ultraviolet lamps are developed.

Photographs are transmitted by telegraph for the first time.

Silicones are discovered.

1908 Ammonia is synthesized.

First steel and glass building is built in Germany.

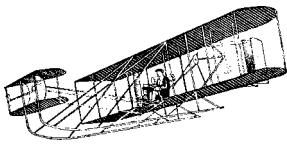
Bakelite (early plastic) is invented.

1909 Bleriot crosses the English Channel in an airplane.

First permanent hair waves are given.

First woman drives a car across the United States.

First 100-mile flight is completed.



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1911 The *Vin Fiz*, a Wright Brothers airplane, is the first airplane to cross the U.S.

1912 The first airplane armed with a machine gun was a Wright Brothers biplane flown on May 7.

1914 The first "Air Force" in the United States is established on July 18. It consisted of six planes and 320 people.

U.S. Court decides in favor of the Wright Brothers in a patent suit filed by Glenn Curtiss.

Technology Timeline

1911 Cosmic rays are discovered.

The concept of a black hole is theorized.

The calculating machine is invented.

1912 Protons and electrons are detected.

The S.S. Titanic sinks.

The first successful parachute jump is made.

The diesel locomotive is developed.

1914 First rocketry experiments are done by Goddard.

World War I begins.

Tear gas is invented.

Panama Canal opens.